present invention. Moreover, features from different embodiments of the invention may be employed in combination. The scope of the invention is, therefore, indicated and limited only by the appended claims and their legal equivalents, rather than by the foregoing description. All additions, deletions, and modifications to the invention, as disclosed herein, which fall within the meaning and scope of the claims are to be embraced thereby.

What is claimed is:

1. A microfluidic platform, comprising:

a substantially planar substrate; and

at least one elongate, nonlinear channel formed in an opening to a major surface of said substantially planar substrate, said at least one elongate, nonlinear channel configured to communicate with a plurality of sensing zones of a specific binding assay apparatus upon assembly of the microfluidic platform with the specific binding assay apparatus.

2. The microfluidic platform of claim 1, wherein said substantially planar substrate comprises a material that is optically transparent to at least one wavelength of radiation to be used in the specific binding assay apparatus.

3. The microfluidic platform of claim 1, wherein said such substantially planar substrate comprises a material that will not substantially adsorb analytes from a sample or sample solution to be introduced into said at least one elongate, nonlinear channel.

4. The microfluidic platform of claim 1, wherein said substantially planar substrate comprises a material that will not chemically react with an analyte of a sample or sample solution to be introduced into said at least one elongate, nonlinear channel.

5. The microfluidic platform of claim 1, wherein said at least one elongate, nonlinear channel has a substantially constant depth.

6. The microfluidic platform of claim 1, wherein said at least one elongate, nonlinear channel has a substantially uniform width along the length thereof.

7. The microfluidic platform of claim 1, wherein said at least one elongate, nonlinear channel includes a plurality of discrete, enlarged regions along the length thereof and a transport region between adjacent enlarged regions of said plurality of discrete, enlarged regions.

8. The microfluidic platform of claim 7, wherein each enlarged region of said plurality of discrete, enlarged regions has a width greater than each said transport region.

9. The microfluidic platform of claim 8, wherein a width of each said transport region is substantially uniform along a length thereof.

10. The microfluidic platform of claim 1, wherein said at least one elongate, nonlinear channel has a depth of at least about 25 microns.

11. The microfluidic platform of claim 10, wherein said at least one elongate, nonlinear channel has a depth of about 70 microns or greater.

12. The microfluidic platform of claim 7, wherein each said transport region has a width of at most about 250 microns.

13. The microfluidic platform of claim 12, wherein each said transport region has a width of at most about 25 microns.

14. The microfluidic platform of claim 7, wherein each enlarged region of said plurality of enlarged regions has a width of at most about 1 millimeter.

15. The microfluidic platform of claim 14, wherein each enlarged region of said plurality of enlarged regions has a width of at most about 100 microns.

16. The microfluidic platform of claim 1, wherein said at least one elongate, nonlinear channel has a serpentine configuration.

17. The microfluidic platform of claim 16, wherein said serpentine configuration is configured to bring said at least one elongate, nonlinear channel into communication with a plurality of sensing zones of a specific binding assay apparatus that are arranged in an area array.

18. The microfluidic platform of claim 1, wherein at least a portion of a side wall of said at least one elongate, nonlinear channel is oriented nonperpendicularly relative to a major plane of said substantially planar substrate.

19. The microfluidic platform of claim 18, wherein at least said portion of said side wall tapers outward from a ceiling of said at least one elongate, nonlinear channel to a surface of said substantially planar substrate to which said at least one elongate, nonlinear channel opens.

20. The microfluidic platform of claim 18, wherein at least said portion comprises a plurality of portions, each of which is located so as to communicate with each of said plurality of sensing zones.

21. The microfluidic platform of claim 1, wherein at least a portion of a ceiling of said at least one elongate, nonlinear channel comprises corrugations.

22. The microfluidic platform of claim 21, wherein said corrugations are positioned so as to be located over each of said plurality of sensing zones.

23. A biosensor, comprising:

a specific binding assay apparatus including a plurality of sensing zones on a surface thereof; and

a microfluidic platform including at least one elongate, nonlinear channel communicating with at least some of said plurality of sensing zones.

24. The biosensor of claim 23, wherein said specific binding assay apparatus comprises at least one of a planar waveguide and a cylindrical waveguide.

25. A method for fabricating a microfluidic platform for use with a specific binding assay apparatus, comprising:

providing a substrate that includes a planar surface;

forming at least one elongate, nonlinear protrusion on said planar surface;

introducing a conformable material onto said planar surface and over said at least one elongate, nonlinear protrusion;

at least partially curing said conformable material; and

following said at least partially curing, removing said conformable material from said planar surface and said at least one elongate, nonlinear protrusion.

26. The method of claim 25, wherein said forming comprises forming at least one serpentine protrusion on said planar surface.

27. The method of claim 25, wherein said forming comprises patterning said planar surface.